

### REMARKS

Claims 1, 3, 4, 7, 8, 12-15, 19-21, 23, 24, 26, and 28 were pending. The applicants add new claim 29.<sup>1</sup> The applicants present claims 1, 3, 4, 7, 8, 12-15, 19-21, 23, 24, 26, 28, and 29 for examination in view of the amendments and the following remarks.

#### *Claim Rejections – 35 USC § 103*

Claims 1, 3-4, 7-8, 12-15, 19-21, 23-24, 26, and 28 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,759,461 ("Jarvenkyla") in view of *Plastics Additives -- An Industrial Guide (2<sup>nd</sup> Edition)* ("Flick"). The applicants traverse.

Claim 1 recites

the adhesion-reducing additive being present in the skin layer in an amount such that the adhesion of the skin layer to the inner core is sufficient to prevent substantial undesired relative movement between the skin layer and the core during installation, but insufficient to prevent the outer skin layer from being cleanly removed by peeling, at least at the ends of the pipe, and insufficient to cause a substantial reduction in the impact strength of the inner core, the adhesive bond between the skin layer and the inner core having a strength of from 0.2 N/mm to 2.0 N/mm, when measured by a rolling drum peel test as described in Appendix 1;

wherein the adhesion reducing additive is an ester of a polyhydric alcohol; and  
wherein the adhesion-reducing additive in the skin layer is present in an amount of from 0.5% to 10% by weight.

The office action acknowledges that Jarvenkyla is silent with regard to the adhesion reducing additive, the amount of this additive to be used and the characteristics of the pipes.<sup>2</sup>

The office action asserts that Flick teaches that glycerol monostearate is widely used in polyolefins as a lubricant, anti-static and antifogging agent. When dealing with a pipe with an outer layer of propylene and inner layer of polyethylene in the absence of the teaching of the present application, a person of ordinary skill in the art would expect that adding a lubricant to the polypropylene would, in fact, aid joining of the two layers. The expected effect of the lubricant at a molecular level would be add mobility to the chains of polypropylene and the

<sup>1</sup> New claim 29 is supported, for example, by original claims 7 and 8.

<sup>2</sup> See office action dated February 3, 2010, page 3.

skilled person would consider that this would be likely to result in the polypropylene molecules at the interface between the skin and the inner core being more mobile, allowing the polypropylene present at this interface layer to diffuse across and into the polyethylene core. A lubricant such as glycerol monostearate would thus be considered to be an adhesion increasing additive by the skilled person, who accordingly would not consider using glycerol monostearate as an adhesion reducing additive. It follows that the skilled person would not to combine the teachings of Jawenkyla with Flick when seeking to create a pipe with reduced adhesion between the outer skin layer an inner core. The examiner's assertion that a lubricant would have been defined by one of ordinary skill in the art as an agent that reduces the attraction (adhesion or cohesion) of the polymer and that one of ordinary skill in the art would use glycerol monostearate as an additive to reduce the adhesion of the outer removable skin layer from the inner core of the plastics pipe lack the rational underpinning necessary to support the legal conclusion that this feature is obvious relative to the cited references.

Moreover, Jawenkyla has not been shown to disclose that general purpose waxes may be used in the mixture of a polypropylene outer layer. A careful reading of the specification reveals two references to wax in the outer layer of the pipe. The first mention of waxes refers to low molecular weight polyethylene wax, mixed with the outer layer<sup>3</sup> and the second mention refers to polypropene [sic] mixed with wax.<sup>4</sup> In both of these instances, the specified wax is in the outer layer and the outer layer is easy to detach from the pipe. There is nothing to suggest that either of these references refers to waxes per se. Indeed, the second discussion of wax appears to be a further example of how low molecular weight polyethylene wax would be used. The specific teaching relates to low molecular weight polyethylene, a species with no terminal polar moieties. There is no suggestion that the use of specific waxes that are chemically different, such as glycerol monostearate which has exposed hydroxyl functional groups, would have a similar effect.

Jarvenkyla further describes an alternate embodiment in which "the core pipe is, prior to forming of the outer layer, dipped in a bath containing liquid polymers which act as an adhesion

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<sup>3</sup> See Jawenkyla, column 3, lines 53-54.

<sup>4</sup> See Jawenkyla, column 3, line 64.

inhibiting layer between the core pipe and the outer layer.”<sup>5</sup> Jarvenkyla also discloses, in different embodiments, that having different materials for the inner core and outer skin layer can probably lower the adhesion between the core and the skin layers;<sup>6</sup> that crosslinking enhancing agents between the outer layer and the core pipe can complement the crosslinking reaction of the pipe material in the joint surface and provide lubrication, which is advantageous in that it reduces the adhesion of the protective layer;<sup>7</sup> and a thin aluminum layer can be provided between the outer layer and the core pipe can facilitate the detaching of the outer layer.<sup>8</sup> Thus, Jarvenkyla presents a number of different possibilities for modifying adhesion between the core and the skin of the pipe. There is no particular reason for a person of ordinary skill in the art to choose any of these approaches for further development in favor of another of the approaches disclosed.

Moreover, even if a person of ordinary skill in the art were to chose the approach based on adding release agent, Jarvenkyla provides low molecular weight polyethylene wax as an appropriate release agent. In addition, even if choosing another release agent, there is no reason asserted as to why a person of ordinary skill in the art would choose glycerol monostearate from the 13 pages of other waxes listed in Flick for use in this application. Rather than suggesting that glycerol monostearate might effectively be applied to polypropylene pipes of the type claimed by the applicants, Flick states

PETRAC GMS glycerol monostearate is widely used as a balanced internal/external lubricant in rigid PVC injection molding, as well as in PVC film, sheet and bottle compounds. In polyolefins, GMS functions as a lubricant, anti-static and anti-fogging agent.<sup>9</sup>

Thus, there are both a wide range of possible approaches to modifying adhesion between the core and the skin of the pipe and a wide range of possible waxes that could be used in the release agent approach. Since KSR, the Federal Circuit clarified that, when the prior art discloses a broad selection of possible solutions to a problem, selecting a particular approach for further investigation does not present the type of situation in which there are a finite number of identified, predictable solutions and is insufficient to support the conclusion that it would have

<sup>5</sup> Jarvenkyla, col. 3, lines 56-59.

<sup>6</sup> Jarvenkyla, col. 2, lines 43-50.

<sup>7</sup> Jarvenkyla, col. 4, lines 3-11.

<sup>8</sup> Jarvenkyla, col. 4, lines 12-17.

<sup>9</sup> Flick, page 927 (emphasis added).

been obvious to try a particular combination.<sup>10</sup> Only impermissible hindsight reconstruction would provide a basis for the proposed combination of references. However, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.<sup>11</sup>

Although the office action asserts "it would be obvious to one of ordinary skill in the art to combine glycerol monostearate as the wax component in the polypropylene outer layer of Jarvenkyla, because the addition of glycerol monostearate would aid in reducing the adhesion of the outer removable skin layer to the inner core layer of the plastic pipe," this mere conclusory statement is insufficient to support the legal conclusion of obviousness. The office action asserts that "[t]he adhesive bond between the skin layer and the inner core layer of 0.2 N/mm to 2.0 N/mm would be discovered by routine experimentation of the amount of the adhesive component added to the composition to discover optimal conditions for a pipe as to not cause premature unwanted peeling of the skin layer, but still allow the outer skin layer to be detached when appropriate." However, neither Jarvenkyla nor Flick discloses the effects of modifying the adhesion in terms of the bond strength that will be obtained.

For at least these reasons, the claim 1 and the associated dependent claims are not obvious in view of the cited references.

All of the dependent claims are patentable for at least similar reasons as those for the claims on which they depend are patentable.

Canceled claims, if any, have been canceled without prejudice or disclaimer.

Any circumstance in which the applicant has (a) addressed certain comments of the examiner does not mean that the applicant concedes other comments of the examiner, (b) made arguments for the patentability of some claims does not mean that there are not other good reasons for patentability of those claims and other claims, or (c) amended or canceled a claim does not mean that the applicant concedes any of the examiner's positions with respect to that claim or other claims.

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<sup>10</sup> *Takeda Chem. Indus. Ltd. v. Alphapharm Pty. Ltd.*, 492 F.3d 1356, 1359-60 (Fed. Cir. 2007).

<sup>11</sup> *In re Fine*, 837 F.2d at 1075, 5 USPQ2d at 1600. See also *KSR International Co. v. Teleflex Inc. et al.*, 127 S.Ct. 1727 at 1742 ("A fact finder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning.")

Applicant : Jeremy Bowman  
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Respectfully submitted,

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Scan M. Dean, Ph.D., J.D.  
Reg. No. 46,656

Fish & Richardson P.C.  
225 Franklin Street  
Boston, MA 02110  
Telephone: (617) 542-5070  
Facsimile: (877) 769-7945

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